CLAIMS

1. A method for the decontamination of oily cuttings, coming from the drilling of oil wells, and the contemporaneous recovery of the oily component, comprising the following steps:

   a. optional mixing of the cuttings with an inert material;

   b. mixing of said cuttings with a solvent compressible to the liquid state at a pressure value ranging from 45 to 80 bar and a temperature corresponding to the saturation value, with dissolution of the oily fraction of the cutting;

   c. removal of the liquid phase (solution) from the solid phase (cutting);

   d. expansion and heating of the solution leaving step (a), with the recovery of the oily fraction discharged, and the solvent in vapour phase;

   e. cooling and condensation of the process solvent and its recycling to step (a), after possible undercooling.

2. The method according to claim 1, wherein the mixing of the cuttings takes place at a pressure ranging from 45 to 80 bar, whereas the separation of the oily fraction is effected at a pressure ranging from 30 to 65 bar.

3. The method according to claims 1 and 2, wherein the

mixing step of the cuttings and the separation step of the oily fraction take place at a temperature close to the saturation value of the liquid phase.

4. The method according to any of the claims from 1 to 3, wherein the under-cooling degree of the liquid phase ranges from 0 to 5°C.

5. The method according to any of the claims from 1 to 4, wherein the solvent is fed to the extraction vessel in a ratio of 2 to 20 times by weight with respect to the cuttings.

6. The method according to any of the claims from 1 to 5, wherein the cutting is mixed with 10-40% by weight with respect to the total of an inert material.

7. The method according to any of the claims from 1 to 6, wherein the inert material consists of cuttings already treated and therefore partially recycled.

8. The method according to any of the claims from 1 to 7, wherein the process fluid is one of the following: carbon dioxide, alkane or alkene with a number of carbon atoms lower than or equal to 3, light hydrofluoro carbide, a mixture of alkanes and/or alkenes and/or HFC.

9. The method according to any of the claims from 1 to 8, wherein the moving of the process fluid is effected using a volumetric compressor situated between the

separation section and the accumulation tank.

10. The method according to any of the claims from 1 to 8, wherein the moving of the process fluid is effected using a volumetric pump situated between the accumulation tank and the extractor.

11. The method according to any of the previous claims, wherein the oily phase extracted is separated by the use of one or more separators on line.

12. The method according to claim 11, wherein the separation section consists of a single separator with a cyclone effect.

13. The method according to claim 11, wherein the separation section consists of two separators, the first with inertial impact, the second with a cyclone effect.

14. The method according to claims 11-13, wherein a filter for separating the entrained liquid, is situated downstream of the separation section.

15. The method according to claim 9, wherein the phase passages of the process fluid take place by energy exchange between the vaporization heat and the condensation heat.